ROYAL CARIBBEAN CRUISES LTD

ENVIRONMENTAL COMPLIANCE AUDIT REPORT

M/V HORIZON

Prepared for

Royal Caribbean Cruises, Ltd.
Miami, Florida

Prepared by

Haley & Aldrich, Inc.
Brea, California

File No. 86168-411
May 2002

UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

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HALEY & ALDRICH

17 July 2002
File No. 86168-411

Captain William Wright
Senior Vice President
Safety & Environment
Royal Caribbean Cruises Ltd.
1050 Caribbean Way
Miami, FL 33132-2096

Subject: Horizon
Environmental Audit Report

Dear Captain Wright:

Enclosed please find three copies of the Environmental Audit Report for the Horizon.

If you have any questions regarding the report, please feel free to contact either of us.

Sincerely yours,
HALEY & ALDRICH, INC.

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EXECUTIVE SUMMARY

At the request of Royal Caribbean Cruises, Ltd. (RCCL), Haley & Aldrich, Inc. completed an environmental compliance audit on the M/V Horizon (the Horizon). The audit was completed pursuant to the plea agreement between RCCL and the United States District Courts for the District of Puerto Rico and the Southern District of Florida in June of 1998, and the Environmental Compliance Plan (ECP) for Royal Caribbean Cruises, Ltd. approved by the courts on 4 January 1999, and amended on 26 March 1999, 5 March 2000, and 31 October 2000. The on-board audit took place between 1 May and 4 May 2002.

OVERVIEW OF FINDINGS

Overall, compliance with the ECP and applicable U.S., Florida, New York, Pennsylvania and Puerto Rico state laws and regulations aboard the Horizon was found to be outstanding. Officer and crew cooperation aboard the vessel during the conduct of on-board audit activities was uniformly outstanding. Auditors were provided access to all areas of the ship requested, and interviews with all necessary individuals were arranged upon request.

All of the elements evaluated during the environmental compliance audit were found to be in conformance with the audit criteria.

REPORT ORGANIZATION

This report is divided into three sections. Section 1.0 serves as a general introductory section, including the objectives and criteria of the audit program and identification of the Haley & Aldrich audit team. Section 1.0 also includes other logistical information related to the audit such as the dates of the on-board audit activities, and tasks undertaken to accomplish the stated objectives. Section 2.0 presents background information on the Horizon, including the date the keel was laid, weight of the vessel, passenger capacity, a description of the environmental management organization, and a discussion of the waste stream handling practices of the vessel. Section 3.0 identifies non-conformances with audit criteria.

1.0 SCOPE OF WORK

1.1 Environmental Audit Objective

The objective of the Horizon audit was to determine compliance with the approved ECP and related U.S. federal environmental laws and regulations. Specific audit criteria and methods that were employed by the auditors to evaluate the Horizon are included in the Environmental Compliance Plan Audit Protocol, and the Port State Regulatory Addenda for Celebrity Cruises, which are a part of Haley & Aldrich's audit workplan.

The Horizon was evaluated for compliance with the following audit criteria:

- The RCCL ECP approved by the U.S. District Court for the Southern District of Florida; and
- U.S. federal and port state (Florida, Pennsylvania, New York and Puerto Rico) laws and regulations applicable to waste management practices aboard foreign vessels.

The period of review for the audit extended from the date of the last audit, 22 January 2001, to the dates on which this audit's activities were completed, 1 May to 4 May 2002.

1.2 Audit Logistics

The environmental compliance audit of the Horizon was conducted beginning on Wednesday, 1 May 2002 and concluding on Saturday, 4 May 2002 for a total of three days on-board. The Haley & Aldrich audit team consisted of three members, Mr. George "Mike" Williams, Senior Marine Consultant, served as the Audit Team Leader. Mr. Joseph Cotier, CPEA, Senior Engineer, participated as an Audit Team member. Mr. Robert Ojala, Marine Surveyor, of ABS Consulting, participated as an Audit Team member and performed audit activities related to mechanical aspects of shipboard pollution control systems.

The Horizon's itinerary during the audit included ports in New York, New York and Hamilton, Bermuda. The audit team boarded in Hamilton on 1 May 2002, and disembarked on 4 May 2002 in New York.

1.3 Audit Methodology

On 1 May 2002, the audit was initiated with an Opening Conference attended by the Horizon's senior officers, and the Celebrity Cruises Director, Safety & Environment. During the Opening Conference, the scope of work and the plan for accomplishing necessary tasks while on-board were discussed. A comprehensive inspection tour of the ship was subsequently completed. Following the inspection, Haley & Aldrich auditors reviewed pertinent environmental records and logs, conducted interviews with ship's officers and crew, and performed "spot-checks" of areas and activities to verify audit

conclusions. Document review was limited to the period from the last audit, up until the date of this audit. Upon completion of the initial inspection tour, ABS Marine Services conducted a marine engineering inspection of the ship's oily bilge water separator systems, marine sanitation devices, and piping arrangements associated with the bilge, gray water/miscellaneous wastewater and black water systems. On 3 May 2002, the audit team conducted a Closing Conference including a discussion of the audit findings with the Horizon's senior officers and the Celebrity Cruises Director, Safety & Environment.

1.4 Audit Criteria Reviewed

The audit criteria reviewed included elements of the ECP pertinent to Celebrity Cruises vessels, and applicable Federal, Florida, New York, Pennsylvania and Puerto Rico State laws and regulatory requirements relevant to the ship's circumstances during the audit.

Audit Topic	**ECP/Regulatory Section**
Environmental Management Systems	Environmental Compliance Plan (ECP)
Waste Management Procedures	ECP Appendix I Celebrity Waste Management Plan
Water Discharges	Clean Water Act and MARPOL Annex I and V, implemented at 33 CFR Parts 151, 153, 159 and 40 CFR § 140.3 and .4 (marine sanitation devices), and 40 CFR Part 110. CERCLA, 40 CFR § 302.4 Florida Statutes §§ 372.85 (fresh water prohibited discharges); 376.071 (vessel emergency plan); 376.041 (coastal waters prohibited discharge); 376.12(11) (notifications of discharge); 403.161; and 403.088 (permit requirements for discharge). New York - 6 NYCRR Part 700 to 705 water discharges, 6 NYCRR Part 654, 656 and 657 (sewage and marine sanitation devices). Pennsylvania – 25 Pa Code Chapter 92.3 (Permit Requirements), 25 Pa Code Chapter 92.4 (Exclusions from Permit Requirements), 25 Pa Code Chapter 93 (Water Quality Standards). Puerto Rico Hazardous Solid Waste – Rule 302; Regulation for the Management of Non-Hazardous Solid Waste Rule 603(b)(1)(f) and Rule 603(b)(2); 33 U.S.C. §§ 1321(b)(5) and 2704(c)(2)(A).

Audit Topic	ECP/Regulatory Section
Wastes Incinerated On-board or Off-Loaded Ashore	MARPOL Annex I and V, implemented at 33 CFR Part 151. Resource Conservation and Recovery Act (RCRA), Subtitle C; 40 CFR Parts 261, 262, 268 and 279 (used oil). Florida Administrative Codes §§ 64E-16.001 to 64E-16.006 and 64E-16.011(biomedical waste); 62-703.030; 62-703.160 (hazardous waste); 62-701.300 and 62-701.520 (special waste) 62-730.185 (universal waste); 2-710.210 (used oil); 62-710.850 (used oil filters); 62-737.150 and 62-737.400 (spent mercury-containing lamps); 62-740.020 to 62-740.040 (PCW management). New York - 6 NYCRR Part 360 (solid waste management); 6 NYCRR Parts 371 and 372 (hazardous waste); 6 NYCRR Part 364 and 19 NYCRR Part 70 (medical waste). Pennsylvania – 25 Pa Code Chapters 260a, 261a, 262a, and 268a (Hazardous Waste Management), 25 Pa Code Chapter 266b (Universal Waste Management), 25 Pa Code Chapter 284 (Infectious and Chemotherapeutic Waste), 25 Pa Code Chapter 287 (Residual Waste Management-General Provisions), and 25 Pa Code Chapter 298 (Management of Waste Oil). Puerto Rico Regulation for the Management of Non-Hazardous Solid Waste – Rule 580, et seq.(biomedical waste); Rule 600 et seq.(used oil); Rule 535 (PCB waste). Regulation of the Management of Hazardous Solid Waste- Parts VI, VII(parallels RCRA). Regulation for the Management of Hazardous Solid Waste – Rule 302; Rule 604(I) (EQB wastes); Rule 605 (EQB wastes); Rule 703 (manifesting); and Rule 1107 (reclaimed lead-acid batteries).

1.5 Audit Report Limitations

This report provides an opinion of compliance with regulatory and other audit criteria, and is not intended to render any opinion relative to existing vessel conditions, except as outlined in the described scope of work.

In the conduct of this investigation, Haley & Aldrich has attempted to independently evaluate information obtained within the limits of the established scope of work as described in our Workplan. As with any evaluation of this type, there is a certain degree of dependence upon oral or written information provided by vessel or other Company

representatives which is not always readily verifiable through visual inspection or review of collaborating documentation. Haley & Aldrich is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed by Company or vessel representatives at the time this investigation was performed.

2.0 VESSEL BACKGROUND

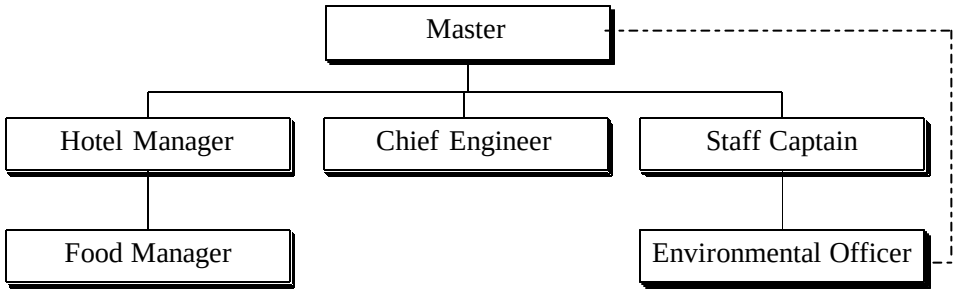
2.1 Vessel Environmental Management Organization

The Master of the Horizon reports to Celebrity Cruises Senior Vice President for Fleet Operations. The primary officer responsible for environmental compliance aboard the Horizon is the Environmental Officer (EO). The Environmental Officer reports to the Staff Captain, with a dotted line responsibility to the Master.

Figure ES-1, presents an overview of the organization in place to address environmental program issues aboard the Horizon.

Figure ES-1

HORIZON
ENVIRONMENTAL MANAGEMENT
ORGANIZATION



2.2 Description of The Horizon

The Horizon is an all welded steel, passenger cruise vessel of modern streamlined design, having 12 decks, nine of which are above the main deck level. The Port of Registry is Monrovia, Liberia. The ship was built by Meyer Werft, Hull S639, Germany; her keel was laid in 1994 and she was delivered in 1995. The Horizon's registered gross tonnage is 70,606. The ship has an overall length of 806.9 ft, and a breadth of 105.7 ft. The vessel reportedly carries approximately 1800 passengers and 800 crew. The ship's propulsion system entails a twin screw, controllable pitch propellers through reduction gears, with two diesel engines per reduction gear.

2.3 Waste Management Practices

The following is a description of the waste management practices aboard the Horizon with regard to each waste stream identified in the Celebrity Waste Management Plan.

Gray Water/Miscellaneous Wastewaters

The gray water/miscellaneous wastewater piping system on-board this vessel is piped to eight gray water collection tanks, and one dedicated laundry water tank located in the machinery and tank spaces on-board. Each gray water collecting tank can be pumped overboard or to dedicated holding tanks No. 5 (port and starboard), used to store gray water when within 12 nautical miles (nm) of land.

The gray water and black water piping systems were generally examined for possible interconnections and, because of the vacuum characteristic of the black water collection system, it is virtually impossible to interconnect the system to the gray water piping without losing vacuum on the black water system. The gray water and black water from the ship's hospital are both collected in the black water system and vacuum is maintained in this area by use of check valves between the two piping systems.

Observations during the audit, interviews and logbook entries since 22 January 2001, confirmed that gray water/miscellaneous wastewater was discharged only outside 12 nm of land at Sea Condition, outside U.S. waters.

Black Water

Three Marine Sanitation Devices of biological design are installed on-board this vessel which take suction from the black water holding tanks and treat all sewage prior to being discharged overboard or into the gray water holding tanks. No solid waste or debris appears to be discharged overboard as part of the black water waste stream, and due to the construction of the holding tanks and treatment systems, any debris entering shipboard black water waste streams would be retained within the holding tanks and could be removed during a maintenance period.

The Marine Sanitation device and related maintenance records were examined, and all were found in compliance with the Manufacturer's recommendations and the vessel owner's maintenance schedule.

Observations during the audit, interviews and logbook entries since 22 January 2001, confirmed that black water was discharged only outside 12 nm of land at Sea Condition, outside U.S. waters.

Bilge Water

The Blohm & Voss oily bilge water separator takes suction from the holding tank and the clean bilge water is discharged into a clean water holding tank. The Marinfloc oily bilge water separator is used to discharge the clean bilge water to the sea. A 15 ppm monitor/alarm (calibrated to 5 ppm) is used in the overboard discharge line from the Marinfloc separator and a 15 ppm monitor/alarm is used from the discharge of the Blohm and Voss unit into the clean water holding tank. A three–way valve system is installed at the discharge of the Marinfloc unit to allow discharge overboard. The three-way valve system is installed to discharge water back to the dirty bilge water holding tank if it is 5 ppm of oil or greater.

The piping system for suction and discharge of bilges, as well as the pollution prevention equipment associated with bilge water treatment and discharge, were visually examined and found to be in compliance with U.S. laws and regulations implementing MARPOL (hereinafter, "MARPOL").

Based on observations during the audit, interviews and logbook entries since 22 January 2002, treated bilge water was discharged only outside 12 nm land at Sea Condition, outside U.S. waters.

Oily Sludge

Separated bilge oil is discharged from the oily water separators to a dedicated sludge tank and the sludge oil tanks listed in paragraph three of the attachment to the IOPP Certificate. Several sludge tanks listed in the Oil Record Book and used for dirty lube oil were not recorded on the ship's IOPP Certificate. Oily bilge sludge is approved for shore facility discharge or burning in the auxiliary boiler or incinerator, per the IOPP certificate attachment Form-A. Based on interviews and Oil Record Book entries since 22 January 2001, oily sludge has been landed to shoreside facilities.

Solid Waste

The following is a description of the Horizon's solid waste management practices for each waste stream identified on the vessel. Haley & Aldrich auditors based this information on observations of the waste handling practices, document and record reviews, and interviews with the Environmental Officer.

Waste Stream	**Ship's Waste Management Practices**
▪ Aerosol cans, including carbon filters from the puncturing device	Aerosol cans are depressurized at Sea Condition. The empty cans are landed for disposal as nonhazardous waste. Liquids drained from the aerosol cans during the depressurization process are captured in a drum, and are landed for disposal as hazardous waste, and the filters are incinerated on-board.
▪ Batteries – nickel cadmium, alkaline, carbon-zinc and other Universal Waste batteries	Expired batteries are collected in a container on-board, and landed for recycling, or as universal waste.
▪ Biomedical wastes	Biomedical contaminated waste is bagged in red bags labeled as "Bio-Hazard" collected within the hospital and incinerated on-board. "Sharps" containers from the hospital and cabins are collected and incinerated on-board.
▪ Butane lighters	Butane lighters are collected on-board and landed as a hazardous waste.

Waste Stream	Ship's Waste Management Practices
▪ Cleaning solutions (acids)	Cleaning solutions (acids) are landed as hazardous waste.
▪ Collected residuals from tank cleaning	Gray water tank residuals from tank cleaning are disposed of into the sludge tank.
▪ Cooking oil	Cooking oil is collected in designated portable containers and landed for recycling.
▪ Expired chemical products (i.e. expired shelf-life) and discarded chemical products	Expired products are returned to the vendor/manufacturer when possible, or are landed for disposal as hazardous waste.
▪ Expired pharmaceuticals	Expired non-narcotic pharmaceuticals are landed for return to the Vendor/Manufacturer. Narcotics are incinerated on-board the ship.
▪ Food waste	Food is processed through the pulpers and is discharged at Sea Condition. Food that cannot be processed in the pulper (bones, shells) are bagged and taken off the ship as nonhazardous waste.
▪ Glass	Glass is crushed and landed for recycling or disposal.
▪ Incinerator ash	Incinerator ash is landed as nonhazardous waste.
▪ Dry cleaning wastes	Wastewater condensate from the dry cleaning operation was treated to below 0.056 mg/l of perchloroethylene and deposited into the oily sludge tank. Solid waste (lint) was stored in a drum for landing as a hazardous waste.
▪ PCB-containing light ballasts	No PCB-containing light ballast waste stream was observed during the audit.
▪ Medical facility X-ray silver bearing waste	Medical facility X-ray silver bearing waste is collected on-board and processed in the silver recovery unit to below 5 mg/l of silver. The treated fixer (and untreated nonhazardous developer) is deposited in the oily sludge tank.
▪ Oil filters	Oil filters are drained and landed as a nonhazardous waste.
▪ Oily rags/Debris	Oily rags are collected and incinerated on-board or landed for disposal as nonhazardous waste.
▪ Packing Materials (dunnage)	Packing materials are collected and incinerated on-board. Materials that cannot be incinerated are landed for disposal as nonhazardous waste.
▪ Paint rags/debris	Paint rags/debris are incinerated or landed as hazardous waste.
▪ Paper, cardboard, trash	Paper, cardboard, trash are either incinerated on-board or landed for disposal as nonhazardous waste.
▪ Photo shop paper filters	Paper filters are collected on-board and landed as hazardous waste.
▪ Photo shop silver recovery cartridges	Photo shop silver recovery cartridges are landed for recycling.
▪ Photo shop wastewaters	Photo shop wash water is deposited into an oily sludge tank. Silver bearing waste is collected on-board and processed in the silver recovery unit to below 5 mg/l of silver. The treated effluent is deposited in the oily sludge tank.

Waste Stream	Ship's Waste Management Practices
▪ Plastics	Light plastics are incinerated; empty hard plastic containers are landed for disposal as nonhazardous waste.
▪ Potable water filter cartridges	Potable water filter cartridges are landed as nonhazardous waste or as scrap metal.
▪ Print shop waste, rags, and debris	Silver bearing liquids are managed as hazardous waste and treated along with Photo Shop silver bearing waste. Solid wastes generated in the print shop are incinerated on-board.
▪ Printer cartridges	Printer cartridges are returned to the vendor.
▪ Recyclable cans/metals	Aluminum and tin cans are crushed on-board, and landed for recycling.
▪ Sand from sandblast units	No sandblast units were present on the ship.
▪ Sand (spent filtration media from freshwater treatment system, pools, jacuzzis	Spent filtration media from the pools and jacuzzis is landed as nonhazardous waste.
▪ Smoke detectors	Smoke detectors are landed for return to the vendor.
▪ Spent and expired flares and signaling devices	No spent or expired flares or signaling devices had been landed during the period of audit review.
▪ Spent fluorescent lamps/bulbs	Spent fluorescent lamps and bulbs are collected on-board and landed for recycling.

2.4 Additional Waste Streams Identified During The Audit

No additional waste streams were identified during the audit.

3.0 AUDIT FINDINGS

All of the elements evaluated during the environmental compliance audit were found to be in conformance with the audit criteria.